IN THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A receiver for receiving a signal of a desired user, which signal may arrive at the receiver in different components along several different paths at several different delays, the receiver comprising:

an antenna array composed of more than one element for receiving the signal, wherein the received signal comprises I- and Q- branches,

one or more rake branches for demodulating the received signal,

at least one search branch adapted to calculate a two-dimensional impulse response of the received signal by searching for incoming directions and delays of components of the received signal, and to transmit information indicating a most favorable signal component demodulated by the one or more rake branches,

and in which at least one rake branch includes

a plurality of beam formers including a first beam former, a plurality of correlators including a first correlator and being respectively coupled to the outputs of the beam formers, and a demodulator coupled to the outputs of the plurality of correlators,

a code generator for generating the codes required by the plurality of correlators,

control means adapted to control the operation of the code generator and the plurality of beam formers via at least one control signal, by which control means, information is received from the search branch about the incoming direction and delay of the most favorable signal component, and

calculation means whose inputs include the outputs of the plurality of correlators, the calculation means being adapted to calculate and transmit to the control means, on the basis of the outputs of the plurality of correlators, information on how the code generator and the plurality of beam formers are to be controlled to ensure that the first beam former and the first correlator receive the most favorable signal component via the direction and delay calculated for this purpose,

wherein, the plurality of correlators included in the at least one rake branch are adapted to calculate, for only one branch of the received signal, a correlation from a calculated incoming direction and from left and right sides of that incoming direction of that at least one rake branch, and

wherein the calculation means are adapted to calculate a control signal for controlling the beam formers such that, if the correlation result calculated, for the only one branch of the received signal, from the left or right side of the incoming direction is higher than the correlation result obtained from the calculated incoming direction for the only one branch of the received signal, the first beam former is controlled to receive the signal from the left or right side of the incoming direction having the higher correlation result.

2. (Canceled)

3. (Previously Presented) A receiver as claimed in claim 1, wherein the calculation means is adapted to calculate control information for the code generator and the beam formers such that the correlation value indicated by the output signal of the first correlator is as high as possible.

4. (Previously Presented) A receiver as claimed in claim 1, wherein the calculation means is adapted to calculate for the code generator a phase change and for the beam formers an angular change such that the correlation value indicated by the output signal of the first correlator is as high as possible.

5. (Previously Presented) A receiver as claimed in claim 1, wherein the calculation means is adapted to calculate control information for the code generator and the beam formers at predetermined intervals.

6. (Canceled)

7. (Canceled)

8. (Previously Presented) A receiver as claimed in claim 1, wherein the plurality of correlators are adapted to calculate the correlation before and after the calculated delay of the most favorable signal component.

9. (Previously Presented) A receiver as claimed in claim 8, wherein the calculation means is adapted to calculate the control signal of the code generator in such a way that if the correlation result calculated before or after the calculated delay of the most favorable signal component is higher than the correlation result obtained from the calculated delay, the code generator is operative to shift code phase to a phase before or after the calculated delay.

10. (Previously Presented) A receiver as claimed in claim 1, wherein at least one rake branch includes a noise code generator and a plurality of correlators which are coupled to the outputs of beam formers, wherein inputs of the respective correlators are coupled to the output of the noise code generator, the at least one rake branch further

including a demodulator coupled to the respective outputs of the correlators, the demodulator being adapted to calculate noise level from the calculated incoming direction of the most favorable signal component.

11. (Canceled)

12. (Previously Presented) A receiver as claimed in claim 1, wherein the code generator generates the following codes having different phases:

- on-time I,
- on-time Q,
- late I,
- early Q.

13. (Currently Amended) A method of receiving a signal of a desired user, which signal may arrive at the receiver in different components along several different paths at several different delays, the method comprising:

receiving the signal by an antenna array composed of more than one element, wherein the received signal comprises I- and Q- branches,

demodulating components of the received signal by one or more rake branches,

calculating a two-dimensional impulse response of the received signal by searching for incoming directions and delays of components of the received signal demodulated by the one or more rake branches,

determining a most favorable signal component,

transmitting information indicating the most favorable signal component demodulated by the one or more rake branches,

processing the signal at each rake branch by a first beam former of a plurality of beam formers included in each branch in such a way that the output signal of the beam former includes a signal component received from a desired direction,

correlating the output signal of the beam former in correlators, wherein said correlating includes calculating, for only one branch of the received signal, a correlation from a calculated incoming direction and from left and right sides of that incoming direction of each rake branch,

demodulating the correlated signal,

generating codes required by the correlators by a code generator,

controlling the code generator and beam formers on the basis of the incoming direction and delay of the signal component,

monitoring, for the only one branch of the received signal, the incoming direction and delay variation of the signal component on the basis of the output signals of the correlators, and

controlling the code generator and the beam formers by means of said monitoring,

wherein the beam formers are at least in part controlled by calculating, inside each rake branch, a control signal for controlling the beam formers such that, if the correlation result calculated, for the only one branch of the received signal, from the left or right side of the incoming direction is higher than the correlation result obtained from the calculated incoming direction for the only one branch of the received signal, [[a]]the first beam former is controlled to receive the signal from the left or right side of the incoming direction having the higher correlation result.

14. (Previously Presented) A method as claimed in claim 13, wherein the code generator and the beam formers are controlled such that a correlation value indicated by the output signal of a correlator to which the signal received from the desired direction has been applied is as high as possible.

15. (Canceled)

16. (Canceled)

17. (Previously Presented) A method as claimed in claim 13, comprising calculating the correlation before and after the calculated delay of the most favorable signal component.

18. (Previously Presented) A method as claimed in claim 17, wherein the code generator is so controlled that if the correlation result calculated before and after the calculated delay of the most favorable signal component is higher than the correlation result obtained from the calculated delay, the code generator is operative to shift code phase to a phase before or after the calculated delay.